



TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: PocketFinder LBPFK140US

To: FCC Part 24: 2008 Subpart E

Test Report Serial No:
RFI/RPT1/RP74958JD03B

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:		
Checked By:	A. HENRIQUES	
Signature:		
Date of Issue:	14 May 2009	

This report is issued in Adobe Acrobat portable document format (PDF). It is only a valid copy of the report if it is being viewed in PDF format with the following security options not allowed: Changing the document, Selecting text and graphics, Adding or changing notes and form fields.

This report may not be reproduced other than in full, except with the prior written approval of RFI Global Services Ltd. The results in this report apply only to the sample(s) tested.

RFI Global Services Ltd

Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire RG23 8BG
Telephone: +44 (0)1256 312000 Facsimile: +44 (0)1256 312001
Email: info@rfi-global.com Website: www.rfi-global.com

Registered in England and Wales. Company number:2117901

This page has been left intentionally blank.

Table of Contents

1. Customer Information 4

2. Summary of Testing 5

3. Equipment Under Test (EUT) 6

4. Operation and Monitoring of the EUT during Testing 8

5. Measurements, Examinations and Derived Results 9

6. Measurement Uncertainty 26

Appendix 1. Test Equipment Used 27

1. Customer Information









Company Name:	Location Based Technologies, Inc.
Address:	Hendfords Farm Long Lane Stafford ST18 9PA United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 24 Subpart E (Personal Communication Services)
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	06 May 2009 to 08 May 2009

2.2. Summary of Test Results

FCC Reference (CFR 47)	Measurement	Port Type	Result
Part 15.107	Idle Mode AC Conducted Spurious Emissions	AC Mains	
Part 15.109	Idle Mode Radiated Spurious Emissions	Enclosure	
Part 15.207	Transmitter AC Conducted Spurious Emissions	AC Mains	
Part 24.232	Transmitter Effective Isotropic Radiated Power (EIRP)	Antenna	
Part 24.235	Transmitter Frequency Stability (Temperature & Voltage Variation)	Antenna	
Part 2.1049/24.238	Transmitter Occupied Bandwidth	Antenna	
Part 2.1053/24.238	Transmitter Out of Band Radiated Emissions	Antenna	
Part 2.1053/24.238	Transmitter Band Edge Radiated Emissions	Antenna	

Key to Results

 = Complied  = Did not comply

2.3. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
Reference:	ANSI C63.4 (2003)
Title:	American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	PocketFinder
Model Name or Number:	LBPFK-140US
IMEI Numbers:	004402010111346, 004402010110900 & 004402010111320
Hardware Version Number:	V2.1
Software Version Number:	V7.1.0
FCC ID Number:	XCRLBPFK-140US

Description:	AC Charger
Brand Name:	Location Based Technologies
Model Name or Number:	JAC05-050100-066W
Serial Number:	None Stated

Description:	Cradle for Charging
Brand Name:	Location Based Technologies
Model Name or Number:	None Stated
Serial Number:	None Stated

3.2. Description of EUT

The equipment under test was a GSM GPRS/GPS locator for people, pets and assets.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	PCS1900		
Type of Radio Device:	Transceiver		
Mode:	GPRS		
Modulation Type:	GMSK		
Channel Spacing:	200 kHz		
Maximum Output Power (EIRP):	28.3 dBm		
Transmit Frequency Range:	1850 MHz to 1910 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8
Receive Frequency Range:	1930 MHz to 1990 MHz		
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Bed Of Nails Fixture (with SMSD; USB; Dual RS232 Converter)
Brand Name:	Microcontact
Model Name or Number:	Custom
Serial Number:	None Stated

Description:	USB – Dual RS232 Converter
Brand Name:	SMSD
Model Name or Number:	USB-Serial Converter
Serial Number:	None Stated
Hardware Version Number:	V2.1

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Idle mode.
- Constantly transmitting at full power on bottom, middle and top channels as required in GPRS mode. The EUT is not capable of transmitting in GSM mode.
- All tests were performed with the EUT in GPRS Multislot Class 10 with the unit transmitting on two timeslots in the uplink. GSM circuit switched mode was not tested as the EUT was not capable of transmitting in this mode.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Connected to a GSM/GPRS system simulator, operating in transceiver mode.
- Transmitter mode radiated spurious emission test was performed standalone and idle mode radiated spurious emissions tests were performed with the mains charger connected to the EUT and 120 V AC supply as this was found to be the worst case during prescans. All accessories were individually connected and measurements made during prescans to determine the worst case combination.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

5.2. Test Results

5.3. Idle Mode AC Conducted Spurious Emissions

Test Summary:

FCC Part:	15.107(a)
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes
EUT Tested (IMEI):	0044020101110900

Environmental Conditions:

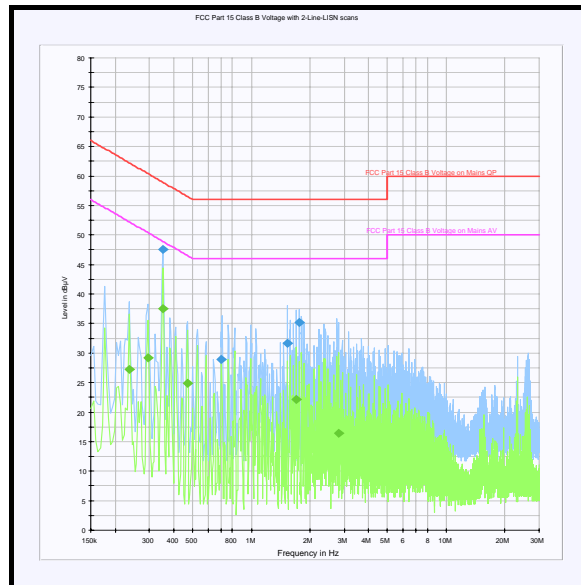
Temperature (°C):	25
Relative Humidity (%):	33

Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.352500	Neutral	47.6	58.9	11.3	Complied
0.703500	Live	29.0	56.0	27.0	Complied
1.522500	Neutral	31.6	56.0	24.4	Complied
1.756500	Neutral	35.2	56.0	20.8	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.235500	Neutral	27.2	52.3	25.1	Complied
0.294000	Neutral	29.2	50.4	21.2	Complied
0.352500	Neutral	37.5	48.9	11.4	Complied
0.469500	Neutral	24.9	46.5	21.6	Complied
1.698000	Neutral	22.2	46.0	23.8	Complied
2.809500	Neutral	16.4	46.0	29.6	Complied

Idle Mode AC Conducted Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

5.4. Idle Mode Radiated Spurious Emissions

Test Summary:

FCC Part:	15.109
Frequency Range:	30 MHz to 1000 MHz
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
EUT Tested (IMEI):	0044002010111346

Environmental Conditions:

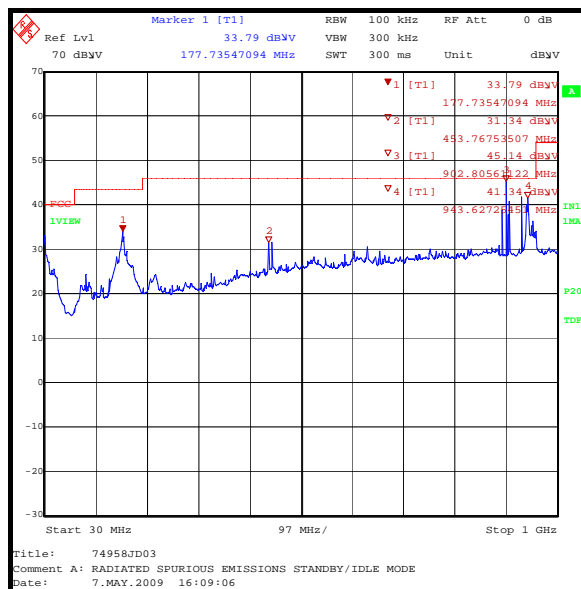
Temperature (°C):	23
Relative Humidity (%):	33

Results:

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
178.771	Horizontal	29.5	43.5	14.0	Complied
453.235	Vertical	35.4	46.0	10.6	Complied
458.791	Horizontal	34.8	46.0	11.2	Complied

Note(s):

- All other emissions was investigated and found to be ambients and still present with the EUT removed from the test chamber.



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

FCC Part:	15.109
Frequency Range:	1 GHz to 12.75 GHz
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
EUT Tested (IMEI):	0044002010111346

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	33

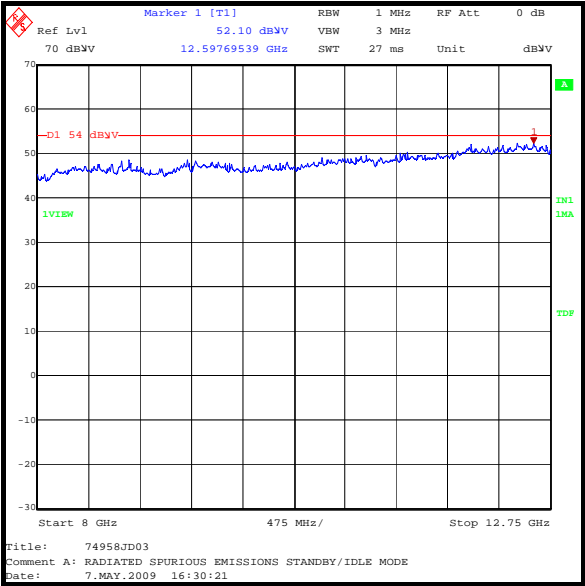
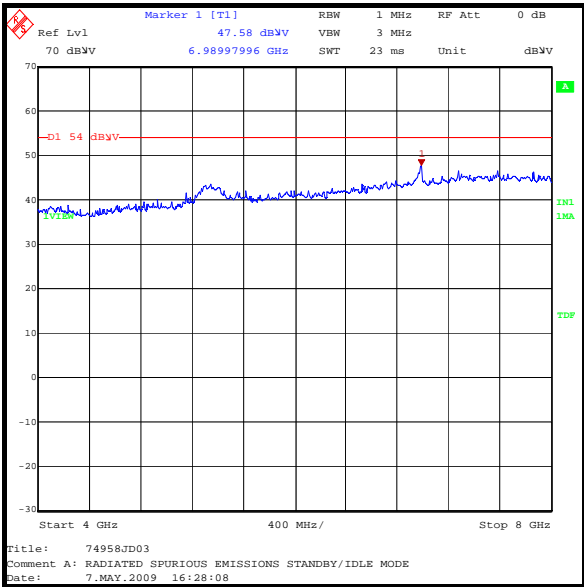
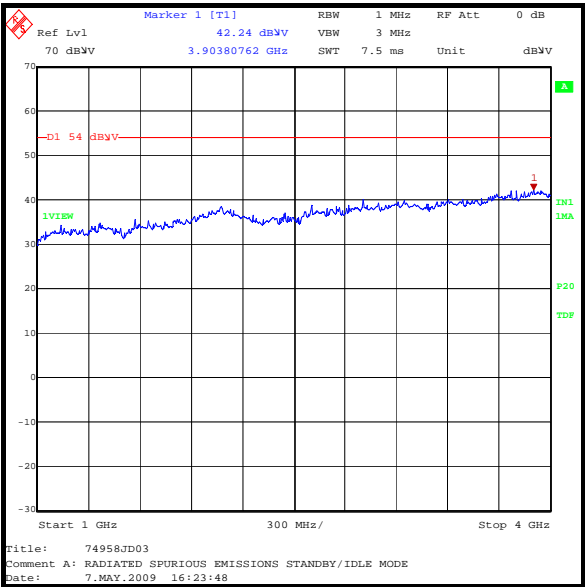
Results: Highest Peak Level:

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Peak Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
12.598	Horizontal	41.0	13.1	52.1	54.0	1.9	Complied

Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.

Idle Mode Radiated Spurious Emissions (continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

5.5. Transmitter AC Conducted Spurious Emissions**Test Summary:**

FCC Part:	15.207
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes
EUT Tested (IMEI):	0044020101110900

Environmental Conditions:

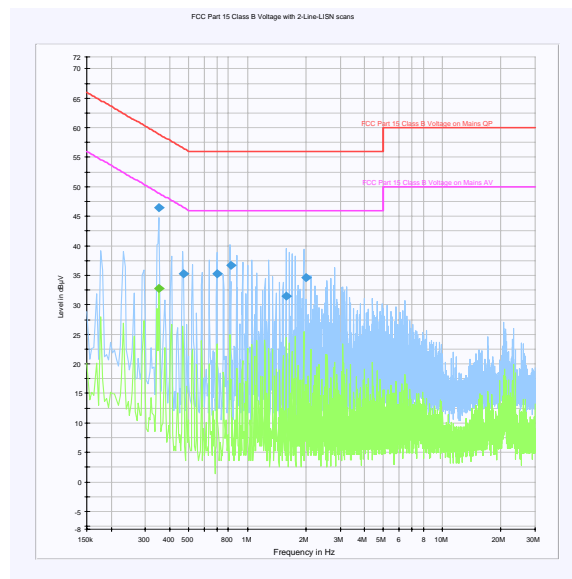
Temperature (°C):	25
Relative Humidity (%):	33

Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.352500	Neutral	46.4	58.9	12.5	Complied
0.469500	Neutral	35.3	56.5	21.2	Complied
0.699000	Neutral	35.3	56.0	20.7	Complied
0.820500	Neutral	36.7	56.0	19.3	Complied
1.581000	Neutral	31.5	56.0	24.5	Complied
1.990500	Neutral	34.6	56.0	21.4	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.352500	Neutral	32.8	48.9	16.1	Complied

Transmitter AC Conducted Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

5.6. Transmitter Effective Isotropic Radiated Power (EIRP)**Test Summary:**

FCC Part:	24.232
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2
EUT Tested (IMEI):	0044002010111346

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	29

Results: GPRS

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter (dBm)	Limit (dBm)	Margin (dBm)	Result
Bottom	1850.2	Horizontal	28.2	33.0	4.8	Complied
Middle	1879.8	Horizontal	28.3	33.0	4.7	Complied
Top	1909.8	Horizontal	28.3	33.0	4.7	Complied

Note(s):

1. Measurements were performed with the test antenna in the vertical and horizontal planes and the EUT in the X, Y and Z planes. The highest level was recorded.

5.7. Transmitter Frequency Stability (Temperature)**Test Summary:**

FCC Part:	24.235
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055
EUT Tested (IMEI):	004402010111320

Environmental Conditions:

Temperature (°C):	16
Relative Humidity (%):	34

Results: Bottom Channel (1850.2 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
-30	-70	1850.199930	1850.0	0.199930	Complied
-20	-40	1850.199960	1850.0	0.199960	Complied
-10	-30	1850.199970	1850.0	0.199970	Complied
0	-43	1850.199957	1850.0	0.199957	Complied
10	23	1850.200023	1850.0	0.200023	Complied
20	28	1850.200028	1850.0	0.200028	Complied
30	25	1850.200025	1850.0	0.200025	Complied
40	-26	1850.199974	1850.0	0.199974	Complied
50	-26	1850.199974	1850.0	0.199974	Complied

Results: Top Channel (1909.8 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-30	36	1909.800036	1910.0	0.199964	Complied
-20	-61	1909.799939	1910.0	0.200061	Complied
-10	-36	1909.799964	1910.0	0.200036	Complied
0	-30	1909.799970	1910.0	0.200030	Complied
10	-16	1909.799984	1910.0	0.200016	Complied
20	21	1909.800021	1910.0	0.199979	Complied
30	32	1909.800032	1910.0	0.199968	Complied
40	-20	1909.799980	1910.0	0.200020	Complied
50	-27	1909.799973	1910.0	0.200027	Complied

5.8. Transmitter Frequency Stability (Voltage Variation)**Test Summary:**

FCC Part:	24.235
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.2 referencing FCC CFR Part 2.1055
EUT Tested (IMEI):	004402010111320

Environmental Conditions:

Temperature (°C):	16
Relative Humidity (%):	34

Results: Bottom Channel (1850.2 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	-19	1850.199981	1850.0	0.199981	Complied
4.2	-20	1850.199980	1850.0	0.199980	Complied

Results: Top Channel (1909.8 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	-15	1909.799985	1910.0	0.200015	Complied
4.2	-16	1909.799984	1910.0	0.200016	Complied

5.9. Transmitter Occupied Bandwidth

Test Summary:

FCC Part:	24.238
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes referencing FCC CFR Part 2.1049 (see note below)
EUT Tested (IMEI):	004402010111346

Environmental Conditions:

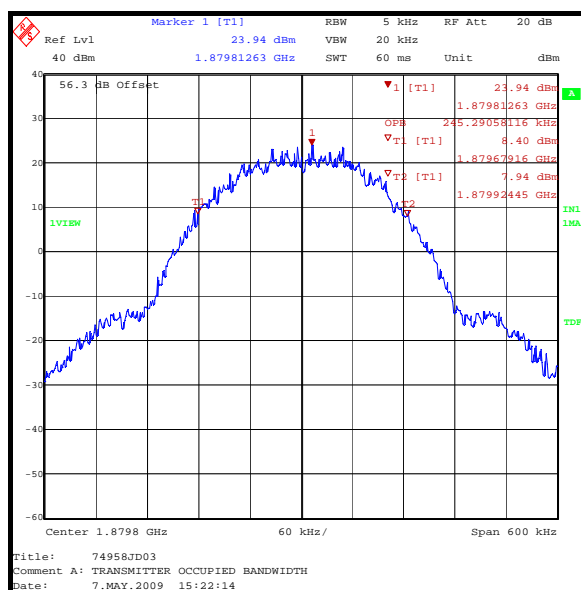
Temperature (°C):	23
Relative Humidity (%):	33

Results: GPRS

Channel	Frequency (MHz)	Occupied Bandwidth (kHz)
Middle	1879.8	245.291

Note(s):

- In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser



5.10. Transmitter Out of Band Radiated Emissions**Test Summary:**

FCC Part:	2.1053 & 24.238
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238
Frequency Range:	30 MHz to 20 GHz
EUT Tested (IMEI):	004402010111346

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	29

Results: Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
3700.430	-17.9	-13.0	4.9	Complied
5550.773	-34.1	-13.0	21.1	Complied
7400.922	-31.4	-13.0	18.4	Complied
9251.106	-33.6	-13.0	20.6	Complied
11101.141	-30.9	-13.0	17.9	Complied

Results: Middle Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
3759.545	-15.1	-13.0	2.1	Complied
5639.406	-28.0	-13.0	15.0	Complied
7519.520	-27.2	-13.0	14.2	Complied
9399.110	-33.4	-13.0	20.4	Complied
11278.622	-25.3	-13.0	12.3	Complied

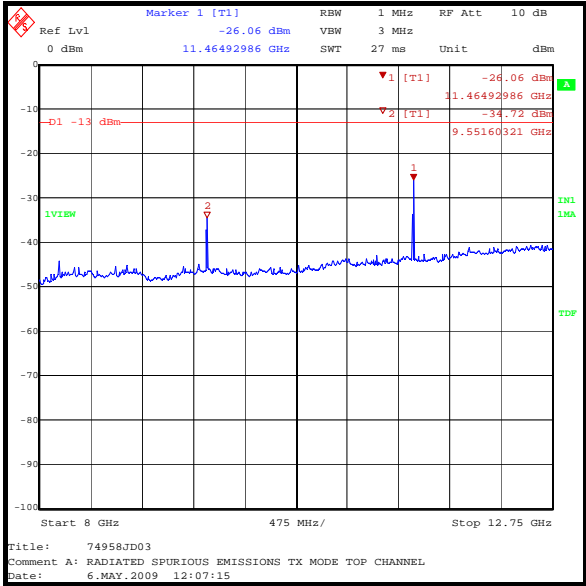
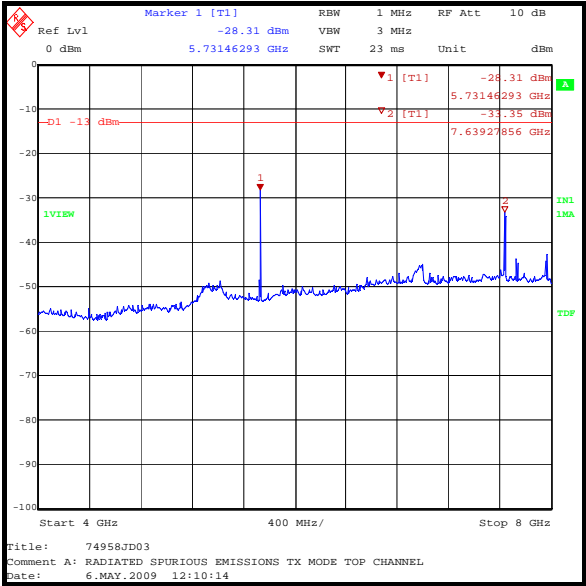
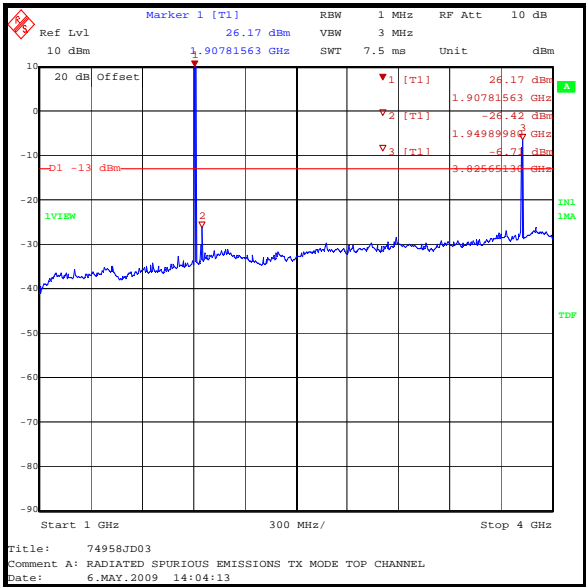
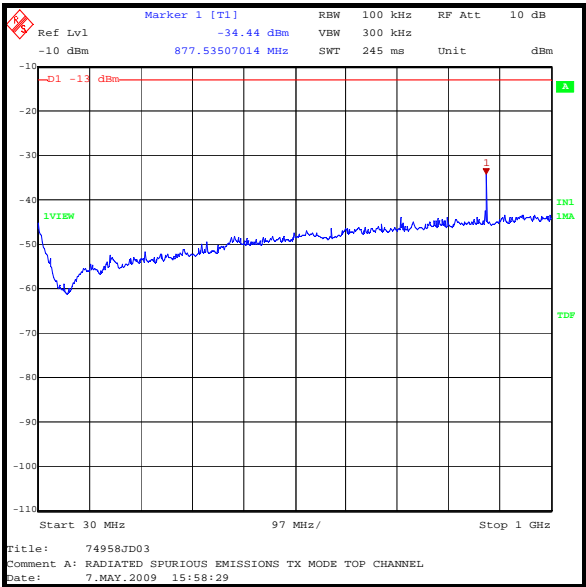
Results: Top Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
3819.687	-15.1	-13.0	2.1	Complied
5729.346	-25.9	-13.0	12.9	Complied
7639.361	-28.3	-13.0	15.3	Complied
9549.241	-30.6	-13.0	17.6	Complied
11458.800	-24.3	-13.0	11.3	Complied

Transmitter Out of Band Radiated Emissions (continued)**Note(s):**

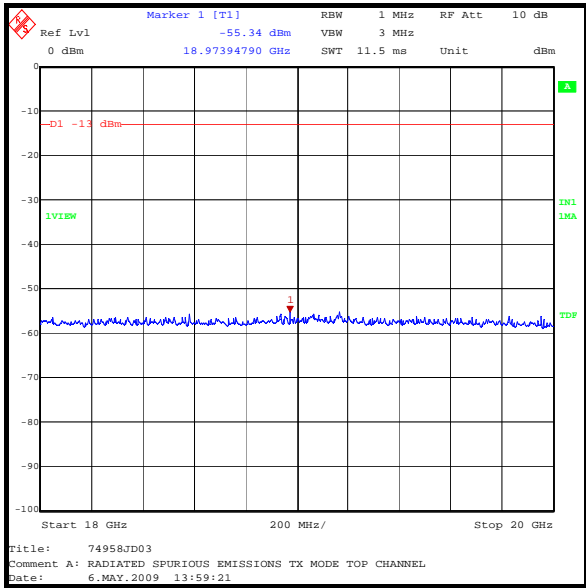
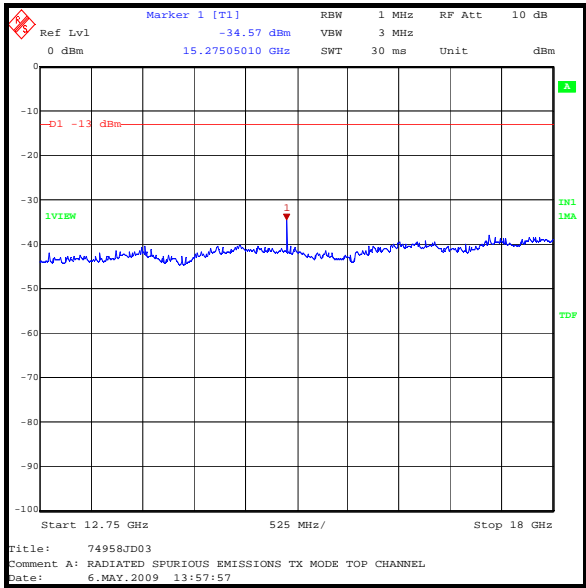
1. The uplink and downlink traffic channel is shown on the 1 GHz to 4 GHz plot at approximately 1909 MHz and 1950 MHz.
2. The emission at 3.8256 GHz on the 1 GHz to 4 GHz plot is caused by distortion in the preamplifier used during pre-scans. The final measurement of this emission was measured using an appropriate filter and the emission level was recorded.
3. All other emissions were investigated and found to be at least 20 dB below the specified limit.

Transmitter Out of Band Radiated Emissions (continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Transmitter Out of Band Radiated Emissions (continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.11. Transmitter Radiated Emissions at Band Edges

Test Summary:

FCC Part:	2.1053 & 24.238
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.12 referencing FCC CFR Parts 2.1053 and 24.238
EUT Tested (IMEI):	004402010111346

Environmental Conditions:

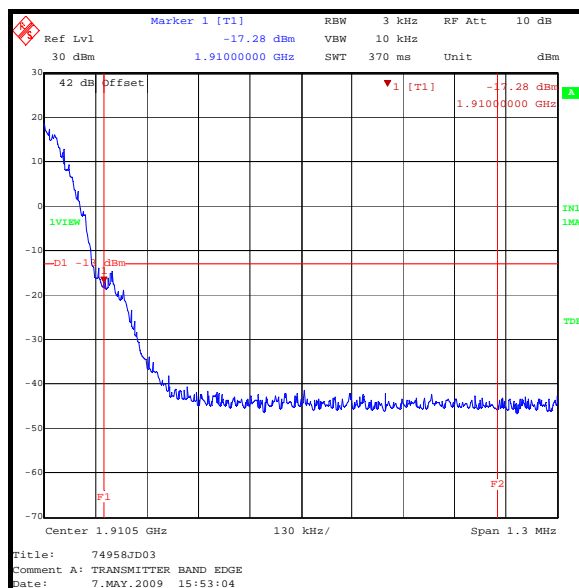
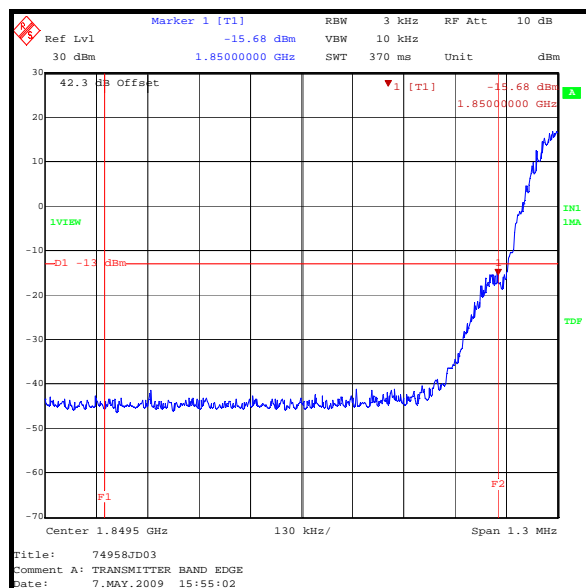
Temperature (°C):	23
Relative Humidity (%):	33

Results: GPRS - Bottom Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1850	-15.7	-13.0	2.7	Complied

Results: GPRS - Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dBm)	Result
1910	-17.3	-13.0	4.3	Complied



6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.72 dB
Effective Isotropic Radiated Power (EIRP)	Not applicable	95%	±2.94 dB
Frequency Stability	Not applicable	95%	±0.92 ppm
Occupied Bandwidth	Not applicable	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 26 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1392	Attenuator	Huber + Suhner	757456	6820.17.B	Calibrated before use	-
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 2009	12
A1933	High Pass Filter	AtlanTEC RF	AFH-03000	30R-JFBN07-001	14 Oct 2008	12
A649	LISN	Rohde & Schwarz	ESH3-Z5	825562/008	19 Mar 2009	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibrated before use	-
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	26 Aug 2008	12
L0990	Comms Test Set	R&S	CMU 200	S220447	18 Feb 2009	12
M1068	Thermometer	Iso-Tech	RS55	93102884	09 Jul 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M1229	Digital Multimeter	Fluke	179	87640015	09 May 2008	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	21 Aug 2008	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	14 Aug 2008	12
S021	Power Supply Unit	Thurlby Thandar	CPX200	061034	Calibrated before use	-

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.